



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,894	08/01/2003	Seimei Ushiro	Q76385	9808

23373 7590 12/09/2005  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

WALKER, KEITH D

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/631,894	Applicant(s) USHIRO ET AL.	
	Examiner Keith Walker	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 25-28 and 51-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-28 and 51-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Corrections to claim 26 are noted and the previous rejection under 35 USC 112 is withdrawn.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 25, 26, 28 & 51 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a secondary cell, does not reasonably provide enablement for the disposal of the secondary cell adjacent to the fuel cell. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The specification does not discuss the arrangement of the secondary cell in relation to the position of the fuel cell. While the drawings show the use of both the fuel cell and the secondary cell, the figures are schematic in nature and show no relational positioning of the two components only electrical connection between the two components.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427), as evidenced by Ohtani (U.S. Patent No. 6,118,949) and Peterson et al. (U.S. Patent No. 3,439,596), in view of Shioya (U.S. Patent No. 6,916,565).

Prasad teaches a removable fuel supply coupled to a fuel cell to power a portable electronic device. The fuel supply includes a fuel storage area enclosed by a first flexible inner container (applicant's flexible sheet member). The first flexible inner container is positioned within the interior of an outer container (applicant's casing). Fuel solution is passed from the fuel storage area to the fuel cell through a fuel solution outlet (applicant's fuel supply port) positioned at the opening of the first flexible inner container. The outer container also includes a waste inlet (applicant's discharged-solution recovery port) for feeding waste into the waste storage area. The waste storage area may be bounded by a second flexible inner container or by the casing alone. The fuel solution outlet and waste inlet are connected to a receptacle allowing for the transfer of fluids between the fuel supply and the fuel cell. An absorbent material (applicant's desiccant) may be placed within the waste storage area or the outer container. The fuel solution outlet and waste inlet ports face the same direction (Pg. 1, [0020] – Pg. 3, [0036]; Figures 2, 3, 10-12). However, Prasad fails to disclose a secondary cell or the fuel cell system disposed at a side of a lens of a camera, where the secondary cell is adjacent to the fuel cell.

Shioya teaches a power supply system in which a secondary cell is charged by a fuel cell in order to prevent wasteful discharge of energy produced and to improve energy utilization (Col. 5, ll. 31-35; Col. 22, ll. 35-50; Fig. 12).

Therefore, one of ordinary skill in the art at the time the invention was made would have provided a secondary cell as taught by Shioya in the fuel cell system as taught by Prasad in order to improve energy utilization. Although not specifically stated, one of ordinary skill in the art would find it obvious that Prasad's "portable electronic devices" would encompass an analog or digital camera and that placement of the power supply system of a camera at a side of the lens is conventional (see 6,118,949 Figure 4 and 3,439,596 Figure 3). The placement of the secondary cell adjacent to the fuel cell is a design choice and a rearrangement of parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the secondary cell adjacent to the fuel cell, since it has been held that rearranging parts of an invention involves only routine skill in the art (*MPEP 2144.04*).

3. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427), in view of Shioya (U.S. Patent No. 6,916,565), and further in view of Lonka (U.S. Patent No. 6,308,084).

Prasad discloses portable electronic devices powered by fuel cells. A fuel supply system includes a fuel storing section formed by a flexible sheet member and a fuel supply port detachably connected to the supply port of the fuel electrode of the fuel cell. (Pg. 1, [0020] – Pg. 2, [0027]). However, Prasad fails to disclose a secondary cell or the fuel cell system disposed at a portion of a portable telephone that includes a keyboard.

Shioya teaches a power supply system in which a secondary cell is charged by a fuel cell in order to prevent wasteful discharge of energy produced and to improve energy utilization. (Col. 5, ll. 31-35; Col. 22, ll. 35-50; Fig. 12). Therefore, one of ordinary skill in the art at the time the invention was made would have provided a secondary cell as taught by Shioya in the fuel cell system as taught by Prasad in order to improve energy utilization. One of ordinary skill in the art at the time the invention was made would find it obvious that Prasad's "portable electronic devices" would encompass a portable telephone even though it is not specifically stated; the artisan would also recognize that the conventional placement of a power supply in a portable phone is behind the keypad. Lonka teaches a mobile communications device with a camera and keypad and a power supply system disposed in the part of the phone that includes the keypad. This placement creates a center of gravity as low as possible to make photographing easier in the vertical position. (Figures 1A, 1B, 2A, 2B; Col. 2). This phone with camera provides the functionality of two electronic devices in one package.

Therefore, one of ordinary skill in the art at the time the invention was made would have used the fuel cell system as taught by Prasad and Shioya together in a portable phone with a camera as taught by Lonka in order to provide the convenience of two devices in one package with the power supply positioned such that the center of gravity is proper for use of the device. The placement of the secondary cell adjacent to the fuel cell is a design choice and a rearrangement of parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

Art Unit: 1745

arrange the secondary cell adjacent to the fuel cell, since it has been held that rearranging parts of an invention involves only routine skill in the art (*MPEP 2144.04*).

4. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427), in view of Shioya (U.S. Patent No. 6,916,565).

Prasad discloses portable electronic devices (specifically personal digital assistants, palm devices, laptop computer) powered by fuel cells. A fuel supply system includes a fuel storing section formed by a flexible sheet member and a fuel supply port detachably connected to the supply port of the fuel electrode of the fuel cell. (Fig. 1; Pg. 1, [0020] – Pg. 2, [0027]). However, Prasad fails to disclose a secondary cell.

Shioya teaches a power supply system in which a secondary cell is charged by a fuel cell in order to prevent wasteful discharge of energy produced and to improve energy utilization. (Col. 5, ll. 31-35; Col. 22, ll. 35-50; Fig. 12). Therefore, one of ordinary skill in the art at the time the invention was made would have provided a secondary cell as taught by Shioya in the fuel cell system as taught by Prasad in order to improve energy utilization. The placement of the secondary cell adjacent to the fuel cell is a design choice and a rearrangement of parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the secondary cell adjacent to the fuel cell, since it has been held that rearranging parts of an invention involves only routine skill in the art (*MPEP 2144.04*).

5. Claims 51, 52, and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427) in view of Shioya (U.S. Patent No. 6,916,565).

Prasad discloses a fuel supply removably coupled to a fuel cell to power a portable electronic device. The fuel supply includes a fuel storage area enclosed by a first flexible inner container (applicant's flexible sheet member). The first flexible inner container is positioned within the interior of an outer container (applicant's casing) and made of materials impervious and chemically stable to the fuel, which may be methanol. Fuel solution is passed from the fuel storage area to the fuel cell through a fuel solution outlet (applicant's fuel supply port) positioned at the opening of the first flexible inner container. The outer container also includes a waste inlet (applicant's discharged-solution recovery port) for feeding waste into the waste storage area. The waste storage area may be bounded by a second flexible inner container or by the casing alone. The fuel solution outlet and waste inlet are connected to a receptacle allowing for the transfer of fluids between the fuel supply and the fuel cell. (Pg. 1, [0020] – Pg. 3, [0036]; Figures 2, 3, 10-12). However, Prasad fails to disclose a secondary cell or the fuel cell system disposed at a side of a lens of a camera.

Shioya teaches a power supply system in which a secondary cell is charged by a fuel cell in order to prevent wasteful discharge of energy produced and to improve energy utilization. (Col. 5, ll. 31-35; Col. 22, ll. 35-50; Fig. 12). Therefore, one of ordinary skill in the art at the time the invention was made would have provided a secondary cell as taught by Shioya in the fuel cell system as taught by Prasad in order



to improve energy utilization. The placement of the secondary cell adjacent to the fuel cell is a design choice and a rearrangement of parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the secondary cell adjacent to the fuel cell, since it has been held that rearranging parts of an invention involves only routine skill in the art (*MPEP 2144.04*).

6. Claims 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427) in view of Shioya (U.S. Patent No. 6,916,565) and further in view of Bateman (U.S. Patent No. 5,909,818).

Prasad and Shioya together teach the elements of claim 53 as discussed in the previous 35 U.S.C. 103 rejection; however, neither reference teaches an antifreezing agent placed in the discharged-solution storage section.

Bateman teaches the addition of antifreeze to a water storage tank so that the water does not freeze. While Bateman's water storage tank is not used in conjunction with a fuel cell, the addition of antifreeze to the tank serves the same purpose as applicant's admitted purpose, that is, to prevent freezing of water in storage and, as such, is considered analogous art. Therefore, one of ordinary skill in the art at the time the invention was made would have included an antifreezing agent as taught by Bateman in the waste storage section of the fuel cell system as taught by Prasad and Shioya in order to prevent the water from freezing.

7. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427) in view of Shioya (U.S. Patent No. 6,916,565) and further in view of Faris et al. (U.S. Patent No. 6,558,825).

Prasad and Shioya together teach the elements of claim 52, as discussed in the previous 35 U.S.C. 103 rejection. Prasad teaches a fuel storing section formed of a bag body, a casing including fuel supply and discharged-solution recovery ports that houses the bag body and forms the discharged solution storage section outside of the fuel bag body (Fig. 12). However, neither reference teaches a flexible casing.

Faris teaches a reservoir container for supplying fuel and collecting reaction products to and from fuel cells. This reservoir container is a flexible vessel with a fixed partition defining the chambers for fuel and waste. This allows for fuel to be force fed from the container to the fuel cell. (Col. 2, ll. 61-65; Col. 10, ll. 45-64; Fig. 4). Therefore, one of ordinary skill in the art at the time the invention was made would have made the casing of the fuel cell system as taught by Prasad flexible as taught by Faris in order to allow for force feeding the reactants to the fuel cell and waste to the storage container.

8. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prasad (U.S. Pre-grant Publication No. 2003/0082427) in view of Shioya (U.S. Patent No. 6,916,565) and further in view of Faris et al. (U.S. Patent No. 6,558,825).

Together, these references teach the elements of claim 58 as discussed in the above 35 U.S.C. 103 rejection. None of the references teach a heating mechanism for heating the discharged-solution storing section or casing. The fuel cell system as taught by Prasad is used in small-scale fuel cell applications, such as portable electronic devices. These type devices are often used outdoors. If the temperature is cold enough to freeze the solution contained in the discharged-solution storing section or casing, the section container or casing could be ruptured by the expansion of the solution upon

Art Unit: 1745

freezing. It is common in many arts to use heaters to raise the temperature to avoid freezing. Additionally, the proximity of the fuel storage section and the discharged-solution storing section would allow for heat transfer from the discharged-solution to the fuel, bringing the reactant to a temperature closer to the operating temperature of the fuel cell. This would result in a more efficient system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a heating mechanism for heating the solution in the discharged-solution storing section or casing in order to keep the discharged solution from freezing and possibly rupturing the container.

### ***Response to Arguments***

Applicant's arguments with respect to claims 25, 26, 28 & 51 have been considered but are moot in view of the amendments and the new ground(s) of rejection as stated above.

Applicant argues the prior art of record does not teach the placement of the secondary cell adjacent to the fuel cell. As discussed above, it appears the specification is lacking support for this limitation. Furthermore, the placement of the secondary cell adjacent to the fuel cell is merely a design choice and is considered a rearrangement of parts. It would be an obvious design choice to one skilled in the art at the time of the invention to arrange the secondary cell next to the fuel cell.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KW



**PATRICK JOSEPH RYAN**  
**SUPERVISORY PATENT EXAMINER**